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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,777	02/01/2002	Chulhee Lee		8214

7590 11/24/2004

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EXAMINER	
SETH, MANAV	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/060,777	LEE, CHULHEE	
	Examiner	Art Unit	
	Manav Seth	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

2. The embodiments in the specification are numbered from 1 through 5 whereas only 4 embodiments recite in the specification. Therefore, a correction is required to number the embodiments from 1 through 4.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuwata, U.S. Patent No. 6,760,489.

- Claim 1 recites "A hybrid interpolation method comprising: a simple interpolation algorithm". Kuwata discloses a simple linear interpolation process (algorithm) in lines 21-22 of column 17 and lines 32-36 of column 18.
- Claim 1 recites "a complex interpolation algorithm than requires a large number of operations but provides a better performance than said simple interpolation". Kuwata discloses a cubic interpolation method (algorithm), which requires a large amount of computation for interpolation and this method is used when importance is laid on the quality of the image (better performance) (column 17, lines 2-7).
- Claim 1 also recites "prediction means that predicts an appropriate interpolation algorithm, which provides a high quality image with a minimum processing time, for a new pixel to be interpolated". Kuwata discloses the prediction of an appropriate interpolation algorithm by obtaining a feature amount for every region of the image, which provides a high quality image with a minimum processing time, for a new pixel to be interpolated (figure 8, column19, lines 1-13; column 20, lines 21-30; column 21, lines 39-47; column 27, lines 41-52).

- Claim 1 recites "performing means that chooses either simple interpolation or said complex interpolation according to said prediction means and performs interpolation for said new pixel". Kuwata discloses the selection of appropriate interpolating processes such as nearest neighborhood method and cubic method according to the prediction means and these selected interpolation processes are executed to perform the desired interpolation (column 19, lines 1-13; column 20, lines 51-64; column 21, lines 39-47).
- Claim 2 recites "a hybrid interpolation method comprising: a plurality of interpolation of algorithms that vary in complexity and performance". Kuwata discloses a plurality of interpolating processes (algorithms) in figure 1 and lines 34-39 in column 19. All other limitations in claim 2 are analyzed and rejected as per claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwata, U.S. Patent No. 6,760,489.

- Claim 3 recites "a hybrid interpolation method comprising: a plurality of prediction means that predicts an appropriate interpolation algorithm, which provides a high quality image with a minimum processing time, for a new pixel to be interpolated". Kuwata discloses the prediction means by predicting whether the image is a natural image or a non-natural image in figure 8. Kuwata also discloses in figure 8 the selection of appropriate interpolating processes such as nearest neighborhood method and cubic method according to the prediction means.

  Further considering figure 55, Kuwata discloses the prediction means on the basis of sharpness of the image. Kuwata in figure 55 teaches the selection of hybrid bi-cubic algorithm for higher sharpness of the image, cubic algorithm for lower sharpness of the image and nearest neighborhood algorithm if sharpness of the image is not important.

  Therefore, it would had been obvious to one having ordinary skill in the art at the time of the invention was made, to combine both figures 8 and 55 disclosed by Kuwata. One would have been to motivated to combine both figures 8 and 55 disclosed by Kuwata in order to generate a hybrid interpolation method which comprises a plurality of prediction means. One would have considered the method of prediction (figure 8) followed by the other prediction (figure 55). One would have considered

the first prediction on the image by predicting it as a natural image or a non-natural image, if the image being a natural image a cubic interpolation algorithm is selected otherwise nearest neighborhood interpolation algorithm is implemented. However, the second prediction which follows the first prediction, would have been the prediction means of obtaining sharper natural image where hybrid bi-cubic interpolation algorithm would have been selected for higher sharpness over cubic interpolation algorithm.

All other limitations in claim 3 had been analyzed and rejected previously as per claim 1 & 2.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Dube et al, U.S. Patent No. 6,782,143 discloses of a method to process an image using interpolation processes like cubic and median interpolations.
- Joe et al, U.S. Patent No. 6,812,935 discloses the scaling of the images by selecting the appropriate interpolation algorithm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (703) 306-

4117. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso, can be reached on (703) 305-3885. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manav Seth
Art Unit 2625
November 15, 2004

BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600